



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
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SWA3-3

Job Sheet 200746



Deviation

Part No: SWA3-3

Job Qty: 1 pcs

Part Name: Electric Swivel 3,000 lb Safe Work Load (1,360 Kg)



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 9/17/19

Job Tracking No:

Created By: Jennifer Renwick

Due Date: 11/5/19

Type: SOLD

Description: Order 19302

Note: DWG SWA3-3 Rev 3 IPP Rev A 18.02.13 New issue DP Verify DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
100	External Load - 1	1 pcs	11/5/19		0.00	2.00	External Load - 1		AP 2019/09/26
							External Load - 2		
							External Load - 3		
110	External Load - 2 - B4B	1 pcs	11/5/19		0.00	2.00	External Load - 1 - B4B		AP 2019/09/27 Michel 2019-9-27
							External Load - 2 - B4B		
							External Load - 3 - B4B		
120	QC 5	1 pcs	11/5/19		0.00	0.00	QC 5 - 10		DAS 30 SEP 27 2019 9-89
							QC 5 - 12		
							QC 5 - 17		
							QC 5 - 18		
							QC 5 - 19		
							QC 5 - 22		
							QC 5 - 24		
							QC 5 - 3		
							QC 5 - 43		
							QC 5 - 49		
							QC 5 - 51		
							QC 5 - 58		
							QC 5 - 68		
							QC 5 - 9		
							QC 5 - 50		
							QC 5 - 30		
							QC 5 - 40		
							QC 5 - 61		
							QC 5 - 81		
130	Packaging 3-1 - Stock - B4B	1 pcs	11/5/19		0.00	0.00	Packaging 3 - 1 - B4B		
							Packaging 3 - 2 - B4B		



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CANADA
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Container No: S217327



Part: SWA3-3

Job No: 200746

Serial No/Batch: S217327

Revision: 3

Inspector:

Exp Date:

Instructions:

Date: 08/28/19

Plex 9/17/19 12:37 PM Dart.Renwick.Jennifer

				Packaging 3 - 3 - B4B	
				Packaging 3 - 4 - B4B	
				Packaging 3 - 5 - B4B	
				Packaging 3 - 6 - B4B	
				Packaging 3 - 7 - B4B	DAS
				Packaging 3 - 8 - B4B	30 SEP 27 2019
				Packaging 3 - 9 - B4B	9-89
				Packaging 3 - 10 - B4B	
				Packaging 3 - 11 - B4B	
				Packaging 3 - 12 - B4B	
				Packaging 3 - 13 - B4B	
				Packaging 3 - 14 - B4B	
				Packaging 3 - 15 - B4B	
				Packaging 3 - 16 - B4B	
				Packaging 3 - 17 - B4B	
				Packaging 3 - 18 - B4B	
				Packaging 3 - 19 - B4B	
				Packaging 3 - 20 - B4B	
				Packaging 3 - 21 - B4B	
				Packaging 3 - 22 - B4B	
				Packaging 3 - 23 - B4B	
				Packaging 3 - 24 - B4B	
				Packaging 3 - 25 - B4B	
				Packaging 3 - 26 - B4B	
				Packaging 3 - 27 - B4B	
				Packaging 3 - 28 - B4B	
				Packaging 3 - 29 - B4B	
				Packaging 3 - 30 - B4B	
				Packaging 3 - 31 - B4B	
				Packaging 3 - 32 - B4B	
				Packaging 3 - 33 - B4B	
				Packaging 3 - 34 - B4B	
				Packaging 3 - 35 - B4B	DAS
				Packaging 3 - 36 - B4B	21 SEP 30 2019
135 DC - 1 - B4B	1 pcs	11/5/19	0.00 0.00	DC - 1 - B4B	9-89
				DC - 2 - B4B	
140 QC 21 - FG	1 pcs	11/5/19	0.00 0.00	QC 21 - FG - 21	DAS
				QC 21 - FG - 70	21 SEP 30 2019
				QC 21 - SA - 53	9-89

Part Op 100 - (Small Fab) -Assemble as per DWG. Sheet 1 ***All assembly to be done in accordance with SWA3 swivel manual***

Descriptions: Engrave T/N And / or S/N number as required Using Marktronic engraver as per DWG. Laser engrave dart logo as per DWG.

110 - (Small Fab) -Assemble as per DWG. Sheet 1 ***All assembly to be done in accordance with SWA3 swivel manual***
Engrave T/N And / or S/N number as required Using Marktronic engraver as per DWG. Laser engrave dart logo as per DWG.

120 - (QC5- Inspect part completeness to step on W/O)

130 - (Identify as per dwg & Stock Location: GA Main) Bag and tag

135 - (Document Control) Photocopy blue file OM & OOPM-SWA3A Rev3

140 - (QC21- Final Inspection - Work Order Release)

Loctite 242 (S186572)

Aeroshell grease NO.7 (M138724)

Silicone ge (S 208124)

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
188-FPSS-832-1/4	Set Screw	1 Ea (1 ea)	100-External Load - 1	S165060
188-FSCS-1032-5/8	Flat socket cap Screw	4 Ea (4 ea)	110-External Load - 2 - B4B	S199362
EL-PLUG-F	3-Prong Female Spade Plug	1 Ea (1 ea)	110-External Load - 2 - B4B	S192571
EL-PLUG-M	3-Prong Male Spade Plug	1 Ea (1 ea)	110-External Load - 2 - B4B	S192574
EL314-SJTOW	Long Line Electrical Wire, 14/3 Gauge replace w/t 01004-08-047	6 ft (6 ea)	110-External Load - 2 - B4B	S179682
SWA3-100	Upper End - Swa3 Swivel	1 pcs (1 ea)	110-External Load - 2 - B4B	S174084
SWA3-200	Lower End	1 pcs (1 ea)	110-External Load - 2 - B4B	S193980
SWA3-300	Wire Clamp	2 pcs (2 ea)	110-External Load - 2 - B4B	S173676
SWA3-400	Button Head Screw	2 pcs (2 ea)	110-External Load - 2 - B4B	S198759
SWA3-500B	Contact Spacer	1 pcs (1 ea)	110-External Load - 2 - B4B	S174896
SWA3-600	O-Ring	1 pcs (1 ea)	110-External Load - 2 - B4B	S198668
SWA3-700	Bearing Balls - 1/4"	32 Ea (32 ea)	110-External Load - 2 - B4B	S190494
SWA6A-1900	1/4" Female Spade Connector	6 Ea (6 ea)	110-External Load - 2 - B4B	S192706
SWA6A-900B	Rotary Connector - 3 wire	1 Ea (1 ea)	110-External Load - 2 - B4B	S197603

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
100-External Load - 1	188-FPSS-832-1/4	1	80	0
110-External Load - 2 - B4B	188-FSCS-1032-5/8	4	76	0
	EL-PLUG-F	1	13	0
	EL-PLUG-M	1	14	0
	EL314-SJTOW	6	0	0
	SWA3-100	1	10	0
	SWA3-200	1	14	0
	SWA3-300	2	10	0
	SWA3-400	2	32	0
	SWA3-500B	1	4	0
	SWA3-600	1	35	0
	SWA3-700	32	267	0
	SWA6A-1900	6	90	0
	SWA6A-900B	1	12	0

Part Specifications

Specifications could not be found.

Plex 9/17/19 12:37 PM Dart.Renwick.Jennifer

P/N	Revision	Drawing Specified Wire	Acceptable Alternate Wire
C2	2	MIL-C-27500 11-14416	N/A
C3	2	MIL-C-27500 11-14417	N/A
C10	3	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
C15	2	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
C20	C	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
C45	C	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
C60	C	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
C250	C	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SWA3-2	3	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SWA3-3	3	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SWA3-4	3	EL 414-ARTIC 4/14	Texcan 01121-744A5
SWA6A-2	E	Texcan 01121-724AM	N/A
SWA6A-3	E	Texcan 01121-734A5 or 01004-08-047	N/A
SWA6A-4	E	Texcan 01121-744A5	N/A
SWA6A-6	E	Texcan 04121-764A5	N/A
SWA6A-8	E	Texcan 12701-08-014 or McMaster 7081K38	N/A
SWA10A-2	3	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SWA10A-3	3	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SWA10A-4	3	EL 414 ARTIC 4/14	Texcan 01121-744A5
SWA10A-6	3	EL 616 ARTIC	Texcan 04121-764A5
SWA10A-8	3	Polar Wire 30806	Texcan 12701-08-014 or McMaster 7081K38
SWA15A-2	1	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SWA15A-3	1	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SWA15A-4	1	EL 414 ARTIC 4/14	Texcan 01121-744A5
SWA15A-6	1	EL 616 ARTIC	Texcan 04121-764A5
SWA15A-8	1	EL 816 ARTIC	Texcan 12701-08-014 or McMaster 7081K38
SAW25A-2	1	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SAW25A-3	1	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SAW25A-4	1	EL 414 ARTIC 4/14	Texcan 01121-744A5
SAW25A-6	1	EL 616 ARTIC	Texcan 04121-764A5
SAW25A-8	1	EL 816 ARTIC	Texcan 12701-08-014 or McMaster 7081K38

P/N	Revision	Drawing Specified Wire	Acceptable Alternate Wire
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C15	2	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
C20	C	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
C45	C	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
C60	C	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
C250	C	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SWA3-2	3	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SWA3-3	3	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SWA3-4	3	EL 414-ARTIC 4/14	Texcan 01121-744A5
SWA6A-2	E	Texcan 01121-724AM	N/A
SWA6A-3	E	Texcan 01121-734A5 or 01004-08-047	N/A
SWA6A-4	E	Texcan 01121-744A5	N/A
SWA6A-6	E	Texcan 04121-764A5	N/A
SWA6A-8	E	Texcan 12701-08-014 or McMaster 7081K38	N/A
SWA10A-2	3	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
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SWA10A-4	3	EL 414 ARTIC 4/14	Texcan 01121-744A5
SWA10A-6	3	EL 616 ARTIC	Texcan 04121-764A5
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SWA15A-2	1	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SWA15A-3	1	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SWA15A-4	1	EL 414 ARTIC 4/14	Texcan 01121-744A5
SWA15A-6	1	EL 616 ARTIC	Texcan 04121-764A5
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SAW25A-3	1	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SAW25A-4	1	EL 414 ARTIC 4/14	Texcan 01121-744A5
SAW25A-6	1	EL 616 ARTIC	Texcan 04121-764A5
SAW25A-8	1	EL 816 ARTIC	Texcan 12701-08-014 or McMaster 7081K38

Work Order 200746

Customer _____

Number of Wires 3Date 2019/09/26Serial Number S217327

Number of Cycles	Load (Lbs.)	Action	Pass/Fail
1	3,000	Check for Conductivity against all wires.	- PASS
1	3,000	Check all wires for grounding against swivel body.	- PASS
1	1,500	Check for Conductivity against all wires.	- PASS
1	1,500	Check all wires for grounding against swivel body.	- PASS
1	750	Check for Conductivity against all wires.	- PASS
1	750	Check all wires for grounding against swivel body.	- PASS
1	0	Check for Conductivity against all wires.	- PASS
1	0	Check all wires for grounding against swivel body.	- PASS

Test Conducted By: ALAN PATRY
TechnicianSignature: *Stephen Sanchez*
QC 5 Small FAB / QA

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: <u>200746</u>	DISPOSITION		AGAINST DEPARTMENT/PROCESS				
Part No. <u>SWA### Swivels 3-3</u>	Rework ☐	Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐		
NCR No. <u>19-7521</u>	Scrap ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐		
	Use-as-is ☒	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐		
	Suspected Unapproved ☐	Large Fab ☐	Composite ☐	Supplier ☐			

Date: 2019/09/27 Step #: _____ QTY Effective: 1 MRB (QSI042) Approval M Lee

Description Work Order Deviation	Disposition	MRB (QSI042) Approval Feb 01, 2018
- Use a combination of heatshrink tubing and RTV Silicone to create a watertight seal around all electrical connections. - Use a D2728-1 Placard in place of the laser engraved Dart logo	These deviations are acceptable to carry out on the following swivels: - SWA3 - SWA6A - SWA10A - SWA15A - SWA25A - PSWA25A - HH40-Q280002 <u>M Lee</u> There is no impact on fit, form or function.	Completed By <u>A. PATRY</u> Lead hand / Supervisor Approval Verification DAS 30 9-89 SEP 27 2019 QC / QA Coordinator Approval DAS 68 9-89 SEP 27 2019

Root Cause		FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Design ☒	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	☒ Drawing
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
LOA ☐	☒ Product Improvement	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
Substation ☐	☒ Process Improvement	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Past Expiry Date ☐	Manufacturing Process ☐				
Misidentified ☐	Past Due ☐	OTHER: _____			

Entered: 2LDate: July 2/2002NCR No. 19-7521

WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

Route update only ☐

Job: _____ Part No. <u>C series hooks and SWA Swivels</u>		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☒		DEPARTMENT/PROCESS Skid-tube ☐ Cross tube ☐ Eng. (Non-AW) ☒ Engineering ☐ Machining ☐ Small Fab ☐ Prod. Eng. Coord. ☐ Water Jet ☐ Large Fab ☐ Finishing ☐ Rec/Store/Packaging ☐ Supplier Quality ☐																														
Date: <u>19-05-09</u>		Sequence #:		QTY Affected: <u>1</u>		MRB (QSI042) May, 9 2019 <i>M. Lee</i> Completed By <u>A. PATRY</u> Lead hand / Supervisor DAS 30 SEP 27 2019 9-89 QC / QA Coordinator 68 SEP 27 2019 9-89																												
Description Work Order Deviation				Disposition																														
The electrical wires listed under "Acceptable Alternate Wire" on the attached sheet are acceptable to use in place of the "Drawing Specified Wire"				This deviation is acceptable. No change to fit form or function. The job route must specify the wire that is called out on the drawing The inventory P/N must reflect the same P/N that was received from a vendor																														
Root Cause Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Preservation ☐ Material ☐ Product Improvement ☒ Process Improvement ☐ Human Factors ☐		FAULT CATEGORY <table border="0"> <tr> <td>☐ Pressure/Forced</td> <td>☐ Contamination</td> <td>☐ Power Loss/Surge</td> <td>☐ Positioned Wrong</td> </tr> <tr> <td>☐ Bending</td> <td>☐ Misaligned/off center</td> <td>☐ Folio/Program</td> <td>☐ Outside Tolerance</td> </tr> <tr> <td>☐ Crushing</td> <td>☐ BOM/Route</td> <td>☐ Grain Direction</td> <td>☒ Drawing</td> </tr> <tr> <td>☐ Cracks</td> <td>☐ Broken/Damage/Defect</td> <td>☐ Weld</td> <td>☐ Finish</td> </tr> <tr> <td>☐ Crimp/Kink/Ripple/Wave/Twist</td> <td>☐ Incomplete/Unclear Instructions</td> <td>☐ Wrong Stock Pulled</td> <td>☐ Part Lost/Missing</td> </tr> <tr> <td>☐ Marks/Chatter</td> <td>☐ Drill Holes</td> <td>☐ Out of Sequence</td> <td>☐ Misread</td> </tr> <tr> <td>☐ Mislabeled</td> <td>☐ Fit/Function</td> <td>☐ Off-set/Set-up</td> <td></td> </tr> </table>					☐ Pressure/Forced	☐ Contamination	☐ Power Loss/Surge	☐ Positioned Wrong	☐ Bending	☐ Misaligned/off center	☐ Folio/Program	☐ Outside Tolerance	☐ Crushing	☐ BOM/Route	☐ Grain Direction	☒ Drawing	☐ Cracks	☐ Broken/Damage/Defect	☐ Weld	☐ Finish	☐ Crimp/Kink/Ripple/Wave/Twist	☐ Incomplete/Unclear Instructions	☐ Wrong Stock Pulled	☐ Part Lost/Missing	☐ Marks/Chatter	☐ Drill Holes	☐ Out of Sequence	☐ Misread	☐ Mislabeled	☐ Fit/Function	☐ Off-set/Set-up	
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Other/Details:																																		

Entered: 2K Date: Oct 23/19



NCR No. 19-7521

WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

Route update only

Job: <u>200746</u> Part No. <u>C series hooks and SWA Swivels</u>		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐		DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☒ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐					
Date : <u>2019/09/27</u>		Sequence #:		QTY Affected :			MRB (QSI042) May, 9 2019 <i>M Lee</i>		
Description Work Order Deviation				Disposition				Completed By <u>A. PATRY</u>	
The electrical wires listed under "Acceptable Alternate Wire" on the attached sheet are acceptable to use in place of the "Drawing Specified Wire"				This deviation is acceptable. No change to fit form or function. The job route must specify the wire that is called out on the drawing The inventory P/N must reflect the same P/N that was received from a vendor				Lead hand / Supervisor DAS 30 9-89 SEP 27 2019	
								QC / QA Coordinator DAS 68 9-89 SEP 27 2019	
Root Cause				FAULT CATEGORY					
Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Preservation ☐ Material ☐ Product Improvement ☒ Process Improvement ☐ Human Factors ☐				☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread					
				Other/Details:					